THE ADVOCATE OF SCIENCE.

KNOWLEDGE IS POWER—HAPPINESS—VIRTUE.

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WILLIAM P. GIBBONS,

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Prospectus of the Advocate of Science.

Knowledge is Power—Happiness—Virtue.

"To teach the young idea how to shoot," was deemed by one of our favorite poets a "delightful task." To give the "young idea" a *proper direction*, every body admits to be of essential importance in the performance of this task. The character of every people, and every age, whether good or bad, depends, in a great degree, on early education. But the taste and habits of youth are not entirely under the control of the professed teacher. They are influenced by many other agents, among the most powerful of which is the public press.

Most of the periodical publications of this country, at the present time, may be ranked in two classes. To the one class belongs those which are purely literary or scientific. These are few, and not liberally supported. It is very evident they do not suit the *popular* taste. To the other class belongs much the greater number, which are generally conducted simply with the view to catch the most subscribers. It is certainly true, though we are almost ashamed to record it, that the most popular and best supported publications of this country, are of a light and trifling character, calculated to amuse without instructing—to excite the passions at the expense of the understanding—to vitiate taste and corrupt morals. Fictitious narratives, anecdotes, riddles, and love-sick rhymes are in demand. And prizes and laurels are awarded to the productions of the imagination, while useful knowledge is almost wholly neglected.

The Advocate of Science will do what it can towards correcting this depraved taste, by serving up to its patrons such gleanings from the field of true knowledge as are calculated to interest and instruct the general reader. In search of these materials, it will traverse the whole range of literature and science. The intellectual disposition and habits of the times will claim its attention. Though the younger portion of the community form the principal object of its prospects, it will not be exclusively adapted to any particular class. It will be conducted by gentlemen who know what they do, and who do what they know will prove useful and interesting. It will be printed weekly, on fine paper, in four large quarto pages.

Subscription price a dollar for fifty numbers, payable in advance. Letters and communications must be post paid, and addressed to William P. Gibbons, S. W. corner of Sixth and Cherry streets, Philadelphia.

To our Readers.

The table on the Aurora Borealis, which we promised this week, is not yet in readiness; but will appear in an early number.

An erratum occurred in the first number, where the word "lucriferous" is inserted twice. The first one should be *luciferous*.

A correspondent has favored us with two other anagrams, worthy of a place in our article of last week, on that subject. The one is on the name of Horatio Nelson, which furnishes the latin sentence *Honor est a Nilo*, or honor is from the Nile. The other is not so perfect, requiring one letter to be totally omitted in the anagram. It is on the French expression, Revolution Français, which gives the French sentence, *un Corse la finiza*—a Corsican shall finish it.

GEOLOGY, No. 2.

In my first number, I stated that the surface of the earth is composed of layers or *strata*, some of them very extensive, others in small patches or *beds*.

That a mountain chain exhibits on its sides the broken edges of these strata, supposed to have been protruded by violence from a horizontal position which they once occupied beneath the surface.

That the strata which successively present their edges to our view on ascending a mountain, repose in an inverse order below the surface, in the valley at the base of the mountain; so that the deepest stratum in the valley, is the highest one on the mountain.

That mines, mountains, ravines, &c. are the most important sources of geological knowledge; but that our knowledge derived from these sources extend only to a depth of four or five miles, or less than a thousandth part of the whole thickness.

It is proper that my readers should impress on their memory these general principles, otherwise, they will fail to understand my subsequent remarks.

Centre of the Earth.—Although we have no direct information respecting the central portion of our globe, yet certain facts have led to the conclusion that its surface only is stratified. The deepest rock, or stratum, that has ever been discovered, is called *Granite*. Granite also composes the summits of most of the highest mountains. Hence it is presumed by many, that this rock is not only the foundation on which all the others rest, but constitutes the whole of the interior of the earth.

Specific Gravity of the Earth.—The specific gravity of our planet has been nearly ascertained. If a leaden weight, or plummet, be suspended from the brink of a precipice, the plummet will be slightly attracted out of the perpendicular direction, towards the rock forming the precipice. By estimating exactly this force, and taking into view some other data, it is calculated that the specific gravity of the earth is about five; or that the globe is about five times heavier than its bulk of water.

Symmes' Theory.—But the mean specific gravity of the materials which compose the surface, is only three. Hence it follows that the interior of the earth must be composed of heavier substances than its superficial portion. Any one is at liberty to puzzle himself in trying to reconcile this fact with captain Symmes' theory, which supposes our planet to be hollow.

Uniform relative Position of the strata.—As a general observation, the strata always preserve the same position relative to each other. Thus, gypsum or plaster of Paris, and salt, are commonly found associated together, in a series of strata, forming what is called the gypsum formation. This formation has never been found beneath the formation which contains stone coal. On the contrary, wherever gypsum and coal have been discovered to exist in the same portion of country, the gypsum is observed to occupy a situation above the coal. Hence, a geologist would decide in a moment, that to search for salt under the coal beds, in the valley of the Schuylkill and Lehigh, would be the extreme of folly.

Geological History of the Creation.—By far the most interesting portion of Geological inquiry relates to the inferences derived from the situation, structure, and composition of the strata, and the various remains of animals and vegetables which are found imbedded therein. This investigation discloses a valuable history of our earth; a history, in its very nature indisputable, and written in characters so simple, that he who runs may read. When we discover in the middle of a continent, the relics of myriads of animals of the shell-covered tribes, that dwell in the sea, what proof more conclusive can we require, that the waves of the ocean once covered the spot? When we see imbedded in a rocky mass, the trunks of trees, deprived of their branches, and broken and torn, and the bones and mangled forms of fish and other animals, who can avoid the conviction that these are the monuments of a terrible catastrophe which carried with it death and destruction? In some of the strata we find positive demonstration of their slow and gradual formation; and equally conclusive is the evidence presented by others, that they were the result of causes, sudden and rapid in their operation. In comparing the order of their formation with the remains of vital existence entombed in these strata, every one must be convinced that there was a day when the waters covered the face of the earth—that at a subsequent period the lower orders of the animal world started into being—that the more perfect tenants of land began their existence at a later day—and that man was the last creation into which was breathed the breath of life.

Sacred History of the Creation.—The Mosaic narrative, at first view, appears to allot only six solar days to the formation and peopling of the earth; and in this respect, to conflict with the geological history, which protracts the same operation through a period of many years. In my next number, I will show in what manner the two accounts may be reconciled.

The negroes of Guiana consider the flesh of the Boa excellent food, and its fat is converted into oil.

For the Advocate of Science.

There are many experiments of a scientific nature, performed almost daily by many persons, without exciting any inquiry as to the cause of the phenomena which result. One of the most common of these consists in the rubbing of a cat's back in the dark. Every child has done this, and no doubt marvelled that fire should be so easily made; and many a one has grown up to manhood without spending a second thought on the cause of it.

A portion of electricity is supposed to be contained by every substance in nature; but so long as every substance retains its due proportion, there will be no appearance of the existence of such a fluid. It is only when the equilibrium is destroyed, or when one body has less, and the other more than its due share, that the electrical fluid is perceptible to our senses. The most ready means of disturbing this equilibrium is by friction. When I rub my hand over a cat's back, some of the electricity existing in my hand is abstracted and retained by the fur of the cat; so that my body loses just what the cat gains. Then, by approaching my hand to the animals, the fluid returns in a visible spark, and the equilibrium is restored. I have sometimes succeeded in electrifying a cat in this manner, to such a degree, as to get a spark from her nose, by presenting my knuckle to it—much to the discomfiture of poor grimalkin, who is not always so indifferent to these experiments as many of her biped fellow creatures.

By rubbing a silk handkerchief, or a ribbon, (perfectly dry,) briskly backwards and forwards on the hair of the head, and then presenting the silk to the nose, a spark is perceived. Here, the friction of the silk on the hair disturbs the electrical equilibrium, in the same manner as the friction of the hand on the fur of the cat.

A stick of sealing-wax, when briskly rubbed with a silk handkerchief, exhibits electrical phenomena. If the stick be large, a spark may be produced from it. A neat little experiment is in every one's power, requiring no other apparatus than a stick of wax, a silk handkerchief, and a few minute images of men, cows, &c. cut out of thin paper. When these images are laid on a book, and the wax held over them, after having been rubbed with the silk, they will jump up, and show a disposition to dance. In this case, the surface of the wax has lost a part of its share of electricity by the friction, and has a tendency to attract the fluid from other bodies in the neighborhood. If those bodies are light, they will themselves be attracted, and as soon as they have been robbed of their share by the wax, are attracted back again by the book, from which they derive a fresh supply, and start off with it to the hungry wax.

A thunder-cloud is to the earth, what the stick of sealing-wax, in this experiment, is to the book. The cloud may have an excess of fluid, and tend to discharge it into the earth; or it may have less than its proper share, in which case, the discharge will be from the earth to the cloud. JUVENIS.

Influence of Intellectual Pursuits on the Duration of Life.

The art of prolonging life has always been a subject claiming much and universal attention. The science and skill of the physician are eminently useful in alleviating and curing the diseases incident to the human system; and thus protracting the existence of individuals. But it is of much more importance to know how to keep clear of an evil, than it is to remove it after its infliction. There is much truth in the old adage, "prevention is better than cure." Did men adhere closely to the precepts of nature, or that sanatory code of laws which is stamped on our animal being, the science of medicine would have comparatively a narrow scope for its application. In this law of our nature, the most important requisition is that of temperance in eating and drinking—in the indulgence of every passion and propensity. Hence we see, to those whose lives have been exemplary in virtue and temperance, have been allotted a fulness of years, which the sensualist never, or rarely obtains.

The chances of long life involve two propositions or circumstances: the occupation of the individual, and the longevity of his predecessors. The influence of the first is so direct and decisive, when uncombined with the latter, that the age to which a person will live, when engaged in certain occupations, can be predicted with tolerable exactness: while in the latter, we not unfrequently see such as are proverbial for an indulgence in sensual inclinations, withstand the fatalities by which thousands of their co-ordinates perish, for an extraordinary number of years. Dr. Rush remarks that he has not found a single instance of a person who had lived to be 80 years old, who was not descended from long-lived ancestors. The following will exhibit the names and characters of some of the most remarkable ancient philosophers, and others.

Zenophilus, a Pythagorean philosopher, lived to his 170th year, and enjoyed all his faculties to the last. He wrote upon music, and was thence called the musician. Theophrastus died loaded with years and infirmities, in the 107th year of his age, B. C. 288, lamenting the shortness of life, and complaining of the partiality of nature in granting longevity to the crow and the stag, and not to man. He studied under Plato, and afterwards Aristotle. To his care are we indebted for the works of the latter, which the dying philosopher intrusted to him. His name signifies *the divine speaker*. Zenophanes, a disciple of Archelaus, flourished B. C. 535, and died very poor, aged about 100. Democritus, born at Abnera, and a disciple of Leucippus, was an ardent lover of knowledge. He died in his 109th year, B. C. 361. He is commonly known under the appellation of the laughing philosopher. Isocrates, a celebrated orator of Athens, starved himself to death in the 99th year of his age, about 338 B. C. Diogenes, remarkable for his temperance and simplicity, died in the 96th year of his age, B. C. 324. Zeno, founder of the stoic sect, and born at Citium, in the island of Cyprus, lived to the age of 98. He fell down and broke one of his fingers; and was so affected with a consciousness of infirmity, that striking the earth, he exclaimed "I am coming, why callest thou me?" and immediately went home and strangled himself. He died B. C. 264. Philemon, a Greek comic poet, lived to his 97th year, and died laughing, as reported, on seeing an ass eat figs, 274 B. C. Thales, one of the seven wise men of Greece, died in the 96th year of his age, 548 B. C. Georgias, surnamed Leontinus, one of the earliest writers on rhetoric, lived to his 108th year, and died B. C. 400. Hiero, second king of Syracuse, died in the 94th year of his age, about 225 B. C. Hippocrates died in his 98th year, B. C. 361, free from all disorders of mind and body. Cleanthes, a stoic, and successor to Zeno, starved himself in his 90th year, B. C. 240. Ctesebius, the historian, flourished about 250 B. C., and died in his 104th year. Simonoides, a poet of Cos, flourished 538 years B. C. He obtained a poetical prize in his 80th, and lived to his 90th year. Carneades, a philosoper of Cyrene, in Africa, flourished 155 B. C. and died in his 90th year. Pyrrho, a sceptical philosopher of Elea, flourished B. C. 304, and died at the age of 90. Sophocles, a tragic poet of Athens, died in the 91st year of his age, 406 years B. C., through excess of joy, as some say, of having obtained a poetical prize at the Olympic games. Pythagoras, the poet, who first assumed the title of philosopher, was supposed to be about 80 years old at the time of his death. Ptolomy Philadelphicus, founder of the Alexandrian library, died in his 84th year, 284 B C. Zenophon died in the city of Corinth, in his 90th year, 359 B. C. Solon, one of the seven sages of Greece, died in his 80th year, 558 B. C. Aristotle died in his 63rd year. He was the founder of the sect called Peripatetics or walking philosophers. Socrates was poisoned in the 70th year of his age. Pherecides, according to Cicero, was the first philosopher, in whose writings the doctrine of the immortality of the soul was advanced and inculcated, died in his 85th year, B. C. 515. Plato died on his birth day, in the 81st year of his age, 348 B. C. Pindar, a lyric poet of Thebes, died in his 86th year, B. C. 435. Anacreon, a lyric poet of Teos, was lacivious and intemperate, choked himself with a grape stone in the 85th year of his age, 532 B. C. Chrysippus, a stoic philosopher, of Soli, died through excess of wine, 207 B. C., in the 83d year of his age.

This number might be greatly enlarged, but we are limited in our space. We might mention the names of thirty-six Greek philosophers, six of whom exceeded the age 100, twenty-four that of 80, and six the age of 60, one of the latter (Socrates) was poisoned. With but two exceptions they were exceedingly temperate men; frequently refusing to occupy the high places of power and riches among their countrymen. The aggregate number of their years would amount to 3509, and the age of each would average nearly 90 years.

Of ten Roman authors, the aggregate of their years is 645, and the duration of each would average 64.5 years.

Of forty-five modern European and American authors, the oldest having attained his 100th year, (Fontanelle,) their aggregate is 3555, and their average ages about 79 years. The average of the nineteen oldest of them is 85¼ years. That of the nineteen oldest of the Greeks, 109.5 years.

We cannot fairly attribute the extended longevity of the ancient Greeks, over our modern authors, to any specific cause, unless it be their greater temperance and regularity of living. In favor of the climate, but little can be said; since we have accounts from an English chronology from 1722 to

1822, which gives a record, during that interval, of nine women and thirteen men, who died between the ages of 100 and 110, twenty-nine women and fifty-two men between 110 and 120—thirteen women and eight men, between 120 and 130—two women and six men, between 130 and 140—and one woman and one man between 140 and 150. Beside these, there was a Mrs. Judith Scott, of Islington, Mrs. Sarah Brookman, of Glastonbury, and Mrs. Williams, of Putney, who might each vie in number of years with the Pythagorean Zenophilus, having respectively arrived at their 162d, 166th and 169th years. And if we credit newspaper accounts, of three years ago, there is a bachelor living in Brazil, who had actually become weary of his state of celibacy, and took unto himself a wife in his 130th year. Among the Goroles, or mountaineers of Upper Poland, M. Schultes saw a person of 112, laboring in his field with as much activity as a man of 20. This individual married for the third time at the age of 110, and a year afterwards had a son. The chastity of his wife, he adds, was above reproach.

TALPA.

MISCELLANIES.

1. "*An Oyster-fish.*—On opening an oyster-shell, fresh from Nanticoke, which had undergone the previous 'ceremony of roasting,' it was found to contain a *fish*, nearly three inches in length, fat, plump and perfect, and still exhibiting animation, which induces the belief that it had been very kindly fed and protected by *its shell*—for there was not a particle or semblance of an oyster; on the contrary, the left forward side fin of the 'solitaire' adhered to the shell, like the ligament (or heart) of an oyster. It is a question for naturalists to decide, or conjecture, how this little finny truant was *caught* by the oyster, and whether the shell nourished the fish, or the fish the shell—for both were in a healthy state."

The above *fish story* is going the rounds of the newspapers, and many an oyster-eater would be puzzled to explain it. There is nothing mysterious in the affair, except the union of the fish to the shell; and this was no doubt a mechanical one. That a fish can derive sustenance by growing fast to an oyster-shell, we may believe when we see pigs running about with human heads grafted on their shoulders. The truth probably is, that the fish while very small accidentally found its way into the oyster, and there lived on the body of the lawful owner of the premises till that body was consumed. The water contained by the shell would support the existence of the fish for sometime afterwards. The "ceremony of roasting" must have been a mere ceremony, to have left the creature alive and in a "healthy" condition It is common for one animal to be thus found within the shell of another. Everybody has seen the small crab in the oyster. This little creature gets in, as before explained in the case of the fish, perhaps while the oyster has its doors open taking a drink. There it thrives well on the juice of the oyster, and finally grows so as to be able to devour its landlord. The shell then opens, and the crab walks forth to provide for himself.

2. *Quantity of Blood in the human body.*—It is difficult to say, with any degree of precision, how much red blood is contained in the vessels of the human system. Most probably the average quantity is between eight and twenty pints. But the amount of *fluids* far exceed this, because a large proportion of these fluids consist of *white* blood. Magendie estimates the weight of the fluids of the body at eight or nine times that of the solids. He cites an experiment of Chaussier, who put a dead body, one hundred and twenty pounds in weight, into an oven, and dried it for many days, till it was reduced to twelve pounds. The same author states that the bodies of the Guanches, a primitive race, are still found in mummy, in the island of Teneriffe, weighing only seven pounds.

3. *Effect of Stunning in prolonging the life of a fish.*—If a fish be stunned, or have its head mashed on being caught, the irratability and sweetness of the flesh will be preserved much longer than after a natural death. A salmon, one of the least tenacious of life, dies in half an hour by exposure; but if stunned, it exhibits indications of life for twelve hours.—*Darwin.*

4. *Mode of Propagating trees.*—In China and Bengal, trees are sometimes propagated by cutting from one of the branches a ring of bark, and encircling the wounded part with a quantity of mud, which is kept constantly wet, by the water dripping from a vessel above. Roots are thrown out, into the mud; and in the autumn the branch is cut off and planted in the earth, where it takes up sustenance by means of these roots. This plan is analogous to that of bending downwards the branch of a tree or shrub, and covering a portion of it with the soil.

5. *Action of mucilage in retarding increase of temperature in fluids.*—Water containing starch is about twice as long in heating over a fire, as it is without the starch. This is owing to the obstruction which the mucilage presents to the motion or circulation of the fluid. When heat is applied to the bottom of a vessel of water, the particles of liquid in contact with the heated surface, imbibe the caloric, and becoming thereby lighter, ascend and give place to the colder particles. A circulation is thus established, and maintained so long as the heat is applied. Starch, or any mucilaginous substance dissolved in the water, acts mechanically in impeding the ascent of the heated particles, and retarding the circulatory process which is necessary to the heating of the whole mass of the fluid. Solids imbibe caloric in a very different manner—by the *conducting* process—the heat being conducted from one particle to another. The non-conducting power of water, in regard to caloric, may be illustrated by placing a basin of water beneath a grate-fire, or in such a situation as to apply the heat to the *surface* of the water. When the water on the top arrives nearly to the boiling point, that on the bottom of the basin will be found scarcely changed in temperature.

6. *Method of hastening the maturation of grapes.*—Darwin tells us that if the stem of a bunch of grapes be cut half through, when the grapes have attained their full size, they will ripen sooner. The incision of the stem acts by putting a stop to the nutrition of the grape. The circulation is kept up between the rim and the fruit, after the latter has reached its full size, which retards the ripening process. To make a partial separation between them is analagous in effect to that of plucking some other fruits from the tree, which is often done with the same object.

7. *A Mouser.*—Some years since, a large black snake accidentally found its way into the cellar of a gentleman in Northumberland county, where it has ever since remained, much to the annoyance of the rats and mice in the neighborhood, who can never safely venture on the premises, except when his snakeship has retired to winter quarters. It has become domesticated, and is quite a favorite with the family.—*Pottsville Gaz.*

8. *Rapacity of Vultures.*—Hawks and vultures are exceedingly numerous both at Jenny and this place. [Bidjie-Backy, in Clapperton's map.] The former are bold and disgusting birds, but the latter are so hungry and rapacious, that they pounce fearlessly in the midst of the natives when at their meals. This evening one of them darted at a piece of meat which one of our men held between his fingers, and snatched it from him while he was conveying it to his mouth.—*Lander's Expedition to the Niger.*

9. *Pacific Ocean.*—The first distinct intimation of the mighty ocean to the west, was indirectly given while the followers of Vasco Nunez de Balboa quarrelled about the division of their spoils. "Why," cried a young cacique, indignantly throwing the gold which the Indians justly called the god of the Spaniards, out of the scales, —"why quarrel for this trash? if you are so passionately fond of gold, as for its sake to abandon your own country, and disturb the

tranquility of ours, I will lead you to a region where the meanest utensil is formed of this metal, which seems so much the object of your admiration." Balboa eagerly caught at the indication; and with incredible hardships, crossed the Isthmus of Darien, that great glen of the New World, and from the summit where Captain Drake afterward stood, beheld the South Sea rolling below, and stretching away in boundless perspective.—*Voyages of Early Navigators.*

10. How wonderful are the large, hemispherical, fixed and latticed eyes of all the fly species? The head of a flesh-fly, in the microscope, is a striking instance of the greatest beauty, order, and art; and what shall we think of that admirable apparatus we call the antennæ, with which the heads of some sorts of gnats are furnished, and the pompous brushy foretops of others? If any man can view these, and supinely ascribe them to fate or contingency, it will appear that nature has been much more solicitous about the furniture of *the head of an insect*, than she has about *that of his own.*—*Martin's Philology.*

Ideas of Savages concerning a Watch.

A WATCH, to persons without a notion of machinery, must be a fund of wonder and perplexity. Mr. Berry, in his account of the destruction of the Boyd, states that the first watch seen by the people of Wangaroa was one belonging to a Captain Ceronci, the master of a vessel employed in taking seals, who put in to that harbor in the year 1808. They could form no other conception of it, of course, than that it was alive; and so mysterious did it seem to them, that they speedily agreed among themselves it could be nothing less than an *Atua* or God. At last one day, when its owner was shewing it to some of them, it fell into the sea. This circumstance inspired the whole inhabitants of the place with the greatest terror; and, when Ceronci set sail a few days after, they had no doubt he had left his demon behind him to plague them. Shortly after this a violent epidemic carried off their chiefs, and great numbers of the tribe; and this calamity they unanimously attributed to the white man's Atua. Within less than a year after this, Captain Ceronci again arrived at New Zealand, a passenger on board the City of Edinburgh, which put in at the Bay of Islands, and lay there for three months. This was about half a year before the catastrophe of the Boyd. On leaving the country on this second occasion, Ceronci again, by a singular fatality, dropt a watch overboard. On this one of the chiefs, who stood near him, wrung his hands, and, uttering a shriek of distress, exclaimed that Ceronci would be the destruction of the Bay of Islands, as he had already been of Wangaroa. Mr. Berry seems to be of opinion that these two unfortunate accidents had a considerable share in stirring up the people of Wangaroa to the act of terrible revenge which they so soon after perpetrated."

"One morning, during Finow's stay at this island, some of the natives brought to Mr. Mariner his watch, which they had procured from out of his chest, and with looks of curiosity inquired what it was. He took it from them, wound it up, put it to the ear of one of them, and returned it: every hand was now out stretched with eagerness to take hold of it; it was applied in turns to their ears; they were astonished at the noise it made: they listened again to it; turned it on every side, and exclaimed, 'moooi,' (it is alive!) they then pinched and hit it, as if expecting it would squeak out; they looked at each other with wonder, laughed aloud, snapped their fingers, and made a sort of clucking noise with the tongue (expressing amazement.) One brought a sharp stone for Mr. Mariner to force it open with; he opened it in the proper way, and shewed them the works; several endeavored to seize hold of it at once, and he who got it ran away with it, and all the rest after him. In about an hour they returned with the watch completely broken to pieces. One had the case, another the broken dial, and the wheels and works were distributed among them. They then gave him the fragments, and made signs to him to put it together, and make it do as it did before: upon which he gave them to understand that they had killed it, and that it was impossible to bring it to life again. The man who considered it his property exclaimed *mow-mow* (spoiled!) and made a hissing noise expressive of disappointment: he accused the rest of using violence, aud they in return accused him and one another. Whilst they were thus in high dispute there came another native, who had seen and learned the use of a watch on board a French ship; when he understood the cause of their dispute, he called them all *cow val-*, (a pack of fools,) and explained in the following manner the use of the watch: making a circle in the sand, with sundry marks about its circumference, and turning a stick about the centre of the circle, to represent an index, he informed them that the use of the watch was to tell where the sun was; that when the sun was in the east the watch would point to such a mark, and when the sun was highest it would point here, and when in the west it would point there; and this he said the watch would do, although it was in a house, and could not see the sun; and in the night time, he added, it would tell what portion of a day's length it would be before the sun would rise again. It would be difficult to convey an adequate idea of their astonishment; one said it was an animal, another said it was a plant; and when this man told them it was manufactured, they all exclaimed *Fontooa boto!* what an ingenious people! All this Mr. Mariner collected partly by their gestures, and afterwards more fully when he understood their language, and conversed with this man, who always prided himself upon his knowledge of the use of a watch, calling himself Papalangi (an European.")—*Lib. Ent. Knowledge.*

Attachment of Bees to their Queen.

ONE of the most interesting portions of the natural history of the bee, is that which relates to its attachment to the queen. We find the following in Bevan's History of the Honey Bee.

Dr. Warder being desirous of ascertaining the extent of the bees' loyalty to their sovereign, ran the hazard of destroying a swarm, for that purpose. Having shaken on the grass all the bees from a hive, which they had only tenanted the day before, he searched for the queen, by *stirring* amongst them with a stick. Having found and placed her, with a few attendants, in a box, she was taken into his parlor; where, the box being opened, she and her attendants immediately flew to the window, when he clipped off one of her wings, returned her to the box, and confined her there for above an hour. In less than a quarter of an hour, the swarm ascertained the loss of their queen, and, instead of clustering together in one social mass, they diffused themselves over a space of several feet, were much agitated, and uttered a plaintive sound. An hour afterwards they all took flight, and settled on the hedge where they had first alighted, after leaving the parent stock; but, instead of hanging together like a bunch of grapes, as when a queen is present, they extended themselves along the hedge, in small bunches of forty or fifty, or more. The queen was now presented to them, when they all quickly gathered round her, with a joyful hum, and formed one harmonious cluster. At night, the Doctor hived them again; and on the following morning, repeated his experiment, to see whether the bees would rise; the queen being in a mutilated state, and unable to accompany them, they surrounded her for several hours, apparently willing to die with her, rather than desert her in her distress. The queen was a second time removed, when they spread themselves out again, as though searching for her; her repeated restoration to them, at different parts of their circle, produced one uniform result; and these poor, loyal, and loving creatures, always marched and countermarched every way, as the queen was laid. The Doctor persevered in these experiments, till after five days and nights of voluntary fasting, *they all died of famine*, except the queen, who lived a few hours longer, and then died. The attachment of the queen to the working bees, appeared to be equally as strong as their attachment to her; though offered honey, on several occasions, during the periods of her separation from them, she constantly refused it, disdaining life, without the company of her subjects."

☞ *A Letter Box is attached to the door of the Office of the Advocate of Science.*